Elite Thermal offers a selection of microprocessor based control instruments from the Eurotherm range, the following is a guide to the capabilities of the standard range of controllers offered:-

Controller and Programmer Features Guide

Type	Indicator/ Overtemperature Protection	PID	Programmer Level*	Advanced Programmer Level 1	Advanced Programmer Level 2**
Model	3216i	3216cc	35081	3016cp	3016p1
Controller size (mm) (Height x width)	48 x 48	48 x 48	96 x48	48 x 48	48 x 48
Communications	Optional RS232 or RS485	Optional RS232 or RS485	Optional RS232 or RS485	Optional RS232 or RS485	Optional RS232 or RS485
Display	Dual	Dual	Dual	Dual	Dual
Alarm Display	No/Yes	Yes	Yes	Yes	Yes
Number of Programmes	N/A	None (Ramp to set point)	1	1	1
Number of Segments per Program	N/A	N/A	20 (Free Format)	8 segment	24 segment
Typical Profiles	N/A				

*10 & 25 program versions of this controller with 350810 & 350825 are available.
**10 program version of this controller with 3016P10 is available.

Note:
1) Other types of instrumentation/controller can be supplied in accordance with your instructions.
2) 3016 and 3508 can be fitted with ethernet comms.


Temperature Controllers, Programmers & Indicators

PID Controller

Eurotherm 3216CC

This 3000 series instrument is a dual display PID controller. A single ramp to setpoint followed by a dwell facility is a standard feature.

Programmable Controllers

Eurotherm 35081

The 35081 is a larger format programmer with multi-line display. It has a single program storage of up to 20 free format segments. It can also be supplied as a dual loop instrument for either cascade control or dual zone control.

Eurotherm 3016CP

3016 CP is a PID Controller with programmer. It has a single program storage of 8 free format segments.

Eurotherm 3016P1

3016 P1 is a PID Controller with programmer. It has a single program storage of 24 free format segments. It is also possible for two relay operated options also.

Eurotherm 3016P10

This version is like the 3016P1 but has more programming capability. The 3016P10 has 10 programs each with 24 segments.

Indicator/Overtemperature Protection

Eurotherm 3216i

An independent digital temperature indicator which is built into the furnace control panel and wired to a panel mounted thermocouple socket. (This is for use with an independent monitor thermocouple).

An independent over-temperature protection system which operates in conjunction with its own independent thermocouple and contactor to shut the furnace down if the controller setpoint is exceeded.

Note: Indicators can also be supplied in a separate mini-console so that, with the addition of a suitable thermocouple, it can be used as an independent portable temperature checker.

4848VRP PID Controller:

4848VRP is a multiprogram/multi segment PID Controller with dual display of set temperature and process variable

Standard Features:

- 8 pattern profiles
- 8 segments per pattern
- Three groups of alarm outputs and each group allows eighteen alarm types in the initial setting mode
- Panel Water proof level: Ip65
- RS-485 communication

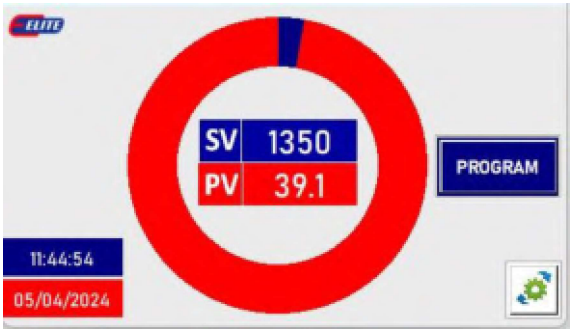
Touch Screen Controllers

TSC-BAP8 Touch screen controller:

TSC-BA is a multiprogram/multi segment Touch screen controller offering 8 Patterns each with 8 free format segments which allows the user to configure the segments of each pattern as ramp or soak (dwell) as each segment is free to format as per user requirement.

Standard Features:

- 4.3" TFT LCD colour touch screen, LED Back light
- Panel mounted USB port
- Data logging to a USB memory stick in a .csv file format
- Real time clock
- 12 Alarm modes based on set value (SV) and process value (PV) in temperature control process
- Buzzer: Multi-tone frequency of 2-4KHz/80 dB
- User level security: 3 levels
- Built-in calendar
- Serial communication port: RS-485
- Panel Water proof level: IP65/NEMA 4



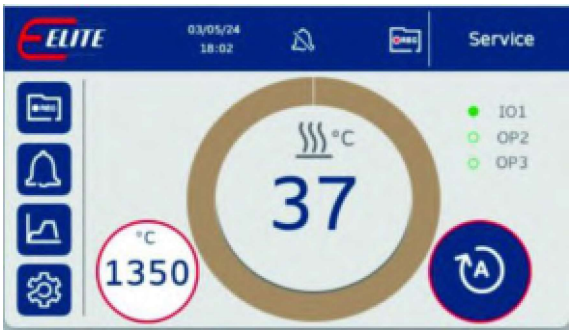
Home Screen (Program Running)

TSC-NLP10 Touch screen controller:

TSC-NL is a multiprogram/multi segment Touch screen controller offering 10 program each with 24 free format segments for applications involving complex temperature profiles for hassle free, smooth and precise temperature control function.

Standard Features:

- 4.3" TFT LCD colour touch screen, White LED Back light
- Panel mounted USB port
- Data logging to a USB memory stick in a .csv file format
- Real time clock
- 6 configurable alarms with manual, automatic, non-latching and event types plus alarm delay function and blocking.
- Audible alarm
- User level security: 3 levels
- Two-point user calibration of thermocouple
- Language setting: English, German, French, Italian, Spanish, Simplified Chinese
- Multizone version: Retransmission of setpoint
- Built-in calendar
- Serial communication port: RS-485
- Dual Ethernet
- Panel Water proof level: IP65F



Home Screen (Auto mode)

Alarms

1) Three Zone Controls - *Designed to provide a longer uniform hot zone*

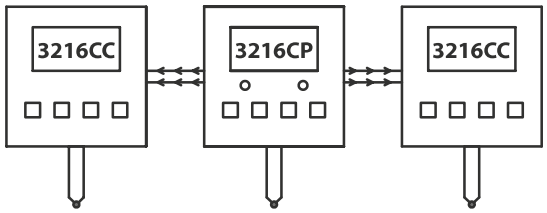
Retransmission of Setpoint

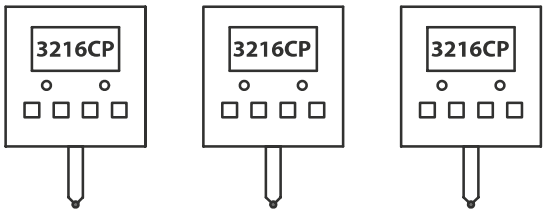
This method has the centre zone programmer digitally sending its setpoint to the other zone controllers so ensuring that all instruments follow the same profile.

This method is recommended where controlled cooling is required.

Independent

This method provides three independent controllers each with their own thermocouple. If programming features are required for the application then all zones must be fitted with a programmable controller.





Note: Instrument types other than those shown on schematics are available for both types of multi control systems.

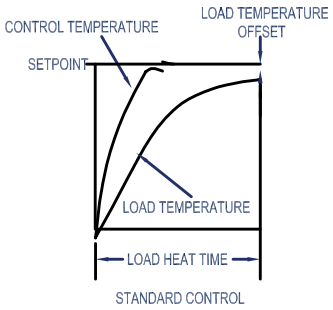
2) Cascade Control - *Designed to allow furnace loads to be heated at a faster rate, with more precise control than the standard control system*

This control system adds another thermocouple and controller to the basic furnace control system.

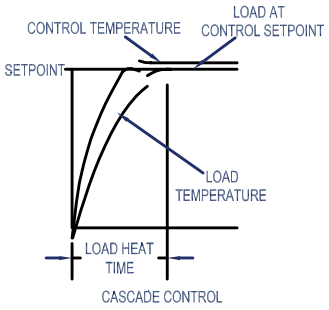
The additional thermocouple is placed close to, or in, the load and connected to the main controller (load control).

The other thermocouple senses the temperature close to the heating elements and is connected to the second controller (element control)

Standard Control



Cascade Control



3) PLC Control Systems - *Programmable Logic Controllers*

Where process applications require the furnace temperature to be integrated with atmosphere control equipment, and/or other mechanical devices, then Elite Thermal is able to provide integrated bespoke PLC control solutions to meet your specific needs.

Digital Communications

Digital communications are available in RS232, & RS485 standards.

The controller communications module is wired to a panel mounted 'D' socket which is normally mounted on the furnace side panel for ease of access.

Note. The communications software, cables & converters are all chargeable options, and therefore if required should be ordered separately.

RS232	Allows a single controller to communicate with a single computer.
RS485	Allows multiple controllers to communicate with a single computer.
Ethernet	Ethernet connection for LAN and Remote communications with the controller. (Enabled controller only).
Software	Elite Thermal offers the I-Tools software package to control the communications between the computer and the temperature controller(s). Other software can be supplied to suit the customer's specific requirements.
Converters	RS232/RS485 converters allow the connection of a RS485 control system to a computer fitted with RS232 communications.

Peak Electrical Power Requirement Explained

We have provided Nominal Power Kw figure in columns for all the furnaces. We can provide peak power for chosen furnace on request.

Peak power: Power to the heating elements is regulated on a time basis by reducing the "ON" time to give an average Power output. However, during the "ON" time, depending on the furnace settings, dictated by the furnace design and heating element type, the elements can consume somewhat higher power which we define as peak power. This peak power can be advised on request. The electrical power supply to the furnace should therefore be rated to carry the peak power. If in doubt, please contact our technical department for peak power advice.

Furnaces Supplied Without Controls

1) The full cost of a controller cannot be passed on to the customer because each furnace has to be individually tested which requires a controller to be configured, fitted and removed after testing.

2) The furnace is supplied without any warranty because the controller setting/performance is critical to the life of the furnace.